The Open Court.

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CONTENTS:

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THE OPEN COURT,

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THE OPEN COURT is not exclusive or sectarian, but liberal. It desires to further the efforts of all scientific and progressive people in the Churches and out of them, towards greater knowledge of the world in which we live, and the moral and practical duties it requires. To this end it asks for circulation in the Churches, and also in all Ethical, Secular, and other Liberal societies. It hopes for a well-wishing co-operation in what all must admit to be true, good, and practical in the conduct of life, individual and collective.

DEFINITIONS EXPLANATORY OF THE POSITION OF "THE OPEN COURT."

THE DATA of experience are perceptions.

REALITY is the sum total of all that is.

TRUTH is the conformity of cognition to reality.

[Truth being a relation between subject and object appears to be relative in its nature. Absolute truth is a self-contradiction; it would imply cognition without a cognizing subject.

At the same time it is obvious that absolute existence (in fact everything absolute) is impossible. Reality is properly called *Wirklichkeit* in German, derived from *wirken*, to take effect. Reality is not immovable and unchangeable absoluteness, but the effectiveness of things in their relations. Reality therefore implies not only existence, but the manifestation of existence also. Existence and its manifestation are not two different things; both are one.

The idea of something absolutely Unknowable is therefore also untenable; it would imply the existence of an object whose existence is not manifested *i. e.*, existence without reality; *Sein ohne Wirklichkeit*—which is a contradiction, an impossibility.]

SCIENCE is the search for truth.

The nature of science is the economy of thought. (*Mach.*)

Economy of thought is possible through application of the laws of form to thought.

KNOWLEDGE is the possession of certain truths.

[Knowledge is, so to say, the present stock or capital with which Science works. Science cannot exist without knowledge. The object of Science is not only to increase and enlarge knowledge but also to purify the present stock of knowledge from vagueness, errors, and misconceptions.

The purpose of knowledge is that of increasing our power over nature.]

MONISM is that philosophy which recognizes the oneness of All-existence, and the Religion of Monism teaches that the individual, as a part of the whole, has to conform to the cosmical laws of the All.

RELIGION is man's aspiration to be in harmony with the All.

[Religion has been defined differently in the columns of THE OPEN COURT, but all definitions that have been presented are in strict agreement. Mr. Hegeler in No. 25, defines Religion as "man's union with the All" (taking the definition from the Lutheran Catechism "Religion ist der Bund des Meuschen mit Gott durch Gott," and replacing the Word GOD by the more comprehensive word THE ALL). The editor has defined Religion as "man's consciousness of his relation to the All" (No. 24); as "Das Allgefühl im Einzelnen," the All-feeling in the individual (see foot-note page 965); as "man's conception of the world that serves him as a guiding-star through life" (page 1180).]

MORALS are man's conduct in so far as it is in unison with the All.

[The basis of morality is religion. A moral educator or preacher may justly be asked, "On what authority dost thou justify thy precepts?" And he will tell us that his authority is not personal; he speaks in the name of universal order. Accordingly his authority is that of religion. If it were not so, all his good precepts would have no foundation; they would hover in the air like beautiful dreams that have no reality.]

ETHICS is the Science of Morals; it teaches man why he must, and how he can, regulate his conduct so as to be in unison with the All.

Natural history and the history of mankind prove that here on earth a constant progress takes place developing ever higher forms of existence.

Morally good are those acts which are in harmony with the All, *i. e.*, those which enhance progress, and *morally bad* are those which are not in harmony with the All, *i. e.*, those which retard or prevent progress.

[Religion (man's aspiration to be in unison with the All) has naturally produced many superstitious notions in the world, of its origin, and of its purpose. Similarly, science (man's search for truth) has produced many errors or false notions of reality. But all the superstitions of religion do not prove that religion as such is an illusion, and all the errors of science are no evidence that science as such is a sham.

It is obvious that religion and science, as here defined, are not contradictory to, but complementary of, each other. If religion and science do not agree, it is a certain sign that our conception of either the one or the other is wrong. The history of the human mind has been one of constant conflict and reconciliation between religion and science. Their relation has repeatedly been disturbed and re-adjusted.

The unitary conception of the world affords the only basis for the union of Religion and Science, and opens a new vista of progress for both.]

RECENT CONTENTS OF "THE OPEN COURT."

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THE PSYCHIC LIFE OF MICRO-ORGANISMS.

A REJOINDER TO MR. GEORGE JOHN ROMANES

BY ALFRED BINET.

I HAVE read with great interest the article (No. 98 of THE OPEN COURT) in which Mr. Romanes discusses the criticisms that in my recent study of Micro-organisms I addressed to him. I wish to offer a few words in reply; endeavoring to limit within as narrow bounds as possible the discussion that has arisen between us.

First, let us rid ourselves of a slight difference, quite subordinate. Mr. Romanes contends, that in his various works he has assigned a much greater place to the psychic life of micro-organisms than I have allowed. I maintain, on the contrary, that he has almost totally neglected that department of investigation, and that it is an omission greatly to be regretted. In his work "Mental Evolution in Animals," he only refers, in following Engelmann, to the two facts, that certain Protozoa seek the light and give chase.* This is indeed little. But let us turn to the volume that contains the main recorded facts of observation—I have reference to the work bearing the title of "Animal Intelligence." We will find there, in the first chapter, four pages devoted to the Protozoa. Strange to say, the first creature treated of in those pages is a Rotifer; an animal that belongs to a branch much higher in organization than that of the Protozoans. The second example given is not a whit more fortunate, for the Myxomycetæ that are there discussed are likewise not Protozoa, but vegetal organisms. The remainder of the section is filled with observations by Carter upon Rhizopoda and Amœbæ. The latter author has made some surprising observations, which are all the more in need of confirmation by reason of the fact that Carter does not, as Mr. Romanes supposes, possess a competence in such matters that is incontestable; on the contrary, his authority is of a very mediocre order among men of his department, and he has committed numerous errors that Stein has pointed out. I have not the space here to give in full the observation of Carter, which is particularly remarkable from the singular language he employs; he speaks of the "*ovarian* aperture" of the Acineta, of the "*fatal lap*" of the Amœba, etc.: surely not the language of a man of science. The following, in few words, is the most curious of the observations he reports. Carter saw an amœba wind itself about the body of a parent-acineta that was just ready to give birth to a filial organism; when the latter was brought forth with the vibratile cilia that enable it to make a rapid flight, immediately upon its exit from the ovary (?) the amœba seized and incepted it. I find it impossible to draw any conclusion from this fact, because I do not know whether it is to be explained by the chance of an encounter or by an act of prevision on the part of the amœba. For this reason, and many others, I am constrained to pass by this observation.

And that is all. Mr. Romanes speaks no further of Micro-organisms. Although, despite this dearth of data gathered, he does not hesitate to assign them a place in his diagram of psychical functions. Moreover, as psychical functions, he accredits them with *excitability*, *discrimination*, *conductibility*. Why are these qualities thus attributed? As the result of the observations we have cited? This, indeed, is beyond my understanding. It appears to me, that there is no relation whatever between the chart and the observations contained in the text.

I shall no longer tarry by like minor points of detail, and now immediately come to a question of much greater importance, upon which Mr. Romanes and I are divided.

I refer to the matter of consciousness. When we come to deal with comparative psychology, and study an animal organism from the point of view of its motory activity, we are naturally led to ask whether the animal in question is conscious of the stimulations received from the outer world and of the movements it performs as the consequence of those stimulations. This is a question of such high importance that Mr. Romanes begins with it his study of Mental Evolution in Animals. The first chapter of that work bears the title "The Criterion of Mind" and it is occupied with the investigation of the physical indices that best enable us to determine whether a living creature is endowed with conscious activity. The author has not concealed the difficulties of his undertaking, and he has explicitly recognized that the question propounded is incapable of receiving a direct experimental solution. In the matter of consciousness, the individual is immediately cognizant of only his own consciousness; he

* Pages 80 and 81.

knows that he has certain thoughts, that he experiences certain pleasures, pains, feelings, etc. To establish the existence of consciousness in other organisms than ourselves, we are obliged to resort to inferential reason, to inductions more or less perfectly founded, and our inductions, moreover, can never be directly confirmed by experience.

These peculiar conditions plainly render the study of consciousness very difficult, and the question arises, whether, indeed, it be prudent to take this problem as the basis of comparative psychology, and to subordinate, in a way, all others to it. But Mr. Romanes has not hesitated. He has produced a criterion of mind that answered his purpose of classifying the different animals from the point of view of their psychical faculties. The fact taken as criterion, is the ability to learn by individual experience. "The criterion of mind, ejectively considered, consists in the exhibition of Choice, and the evidence of Choice we found to consist in the performance of adaptive action suited to meet circumstances which have not been of such frequent or invariable occurrence in the life-history of the race, as to have been specially and antecedently provided for in the individual by the inherited structure of its nervous system."*

Accordingly, then, all motory activity apparently fixed in the individual and in the species by heredity, can furnish no competent evidence of its being a conscious activity.

We shall return, in due time, to this criterion, of which this commendation at least may be made, that it is the most carefully elaborated of all hitherto proposed. Mr. Romanes has taken much pains to institute exhaustive researches in relation to the psychological problems that he regards the indispensable preliminaries to a study of the mental evolution of animals. It remains, however, to be seen, whether the results he has obtained can be accepted.

I shall now explain the point of view from which I have proceeded, in writing my treatise upon the psychic life of micro-organisms. This point of view has nothing in common with that of Mr. Romanes. I did not set out, as he has, with laying down a criterion of mind or of consciousness; and if I did not do so, it was not because I forgot it, but because I deemed it imprudent. The problem of consciousness, so soon as I had closely examined it, seemed to me absolutely insolvable; and now again, in spite of all the pains I have taken to re-read the work of my adversary, I still consider that investigation fruitless—at least for me. I accordingly put it out of my way: I do not entirely reject it as the positivists do, for questions of origin and purpose,—I reserve it. I, in this way undertook to write a psychology of micro-organisms without concerning myself to ascertain whether these low-class creatures were or were not conscious of the stimulations they receive from their environment, and of the movements of adaptation they perform in consequence of these stimulations. I, moreover, expressly emphasized this reservation on page 61 of the American edition of my work.

I ought, perhaps, to have insisted more strongly upon that reservation, which Mr. Romanes does not seem have noticed; I should have pointed out what the inherent difficulties were, in a discussion of any criterion whatsoever of mind. My excuse for not having done so, is, that I modestly proposed, in that work, to present new observations, little known to psychologists; and if I added to those facts a few lines of comment, it was done simply to emphasize their importance.

Possibly, the reader will ask, What can a comparative psychology lead to, the chief problem of which is summarily suppressed? What interest, it will be said, does the psychological study of micro organisms possess, if we resolve not to investigate the degree of consciousness enjoyed? Suppressing that question, what remains?

In answer to the objection, I will reply with Mr. Romanes, who in this regard must wholly share my opinion, that what we call a conscious phenomenon, such as a perception for example, a ratiocination, an act of memory, is in reality a complex and deceptive operation; simultaneously with the state of consciousness revealed to each one of us, an especial work is performed in the ganglionary cells connected with the function set in activity, and although very little is known of the inner nature of this work, its existence at least may be definitely known by the various muscular, thermal, and secretory effects that it induces in the organism. The acts of life of relation, therefore, may be studied from two points of view: from the subjective, mental point of view, and from the objective, material point of view.

Now this is precisely what I have done. In my work on Micro-Organisms, I particulary endeavored to bring this side of the question to the light. In examining, for instance, the observation of Verworn upon *Difflugia urceolata*, I sought to analyze the complicated acts of preadaptation which that animal executes, without putting to myself the question whether *Difflugia* was conscious of the end sought after. The objective, the palpable fact was, that the animal performed an act of preadaptation.

It will suffice, in fine, to say, that, having come to the conviction that the question of consciousness is one of the most difficult and complex that can be propounded, I had systematically excluded that question from my study of Micro-organisms; I treated it in no

*Page 59.

aspect, I even deemed it necessary, the only time I alluded to it, to state that it appeared to me almost insolvable.

No one, in my opinion, has a right to reproach an author for proceeding with too great prudence; and the position I have taken, moreover, it is my intention absolutely to maintain. I shall maintain it, until new facts been brought to my knowledge competent to clear up the psychology of consciousness and unconsciousness.

However, I must now occupy myself more especially with Mr. Romanes's opinions on comparative psychology; I criticized his opinions in the preface to my treatise and to those criticisms he has replied.

Mr. Romanes reproaches me with having contested various interpretations of his, that were the regular application of his criterion of mind, and with not having spoken of that criterion, which I appear to be ignorant of. I am pleased to own, upon that point, that my honored adversary is right. It was positively wrong of me, not to have entered upon the question as a whole, and it would have been better not to have summarily treated the matter in a few lines. I propose, then, to correct, to the best of my ability, the omission I have made, and carefully to examine the criterion of mind that Mr. Romanes has propounded, and to which I have referred in the first part of this article.

To escape the possibility of future errors, I shall examine Mr. Romanes's theory by reference to the data contained in the first six chapters of "Mental Evolution in Animals." We will return once more to the "criterion"; pointing out the method the author pursues to present it and at the same time to prove it. "The distinctive element of mind," says he, "is consciousness; the test of consciousness is the presence of choice; the evidence of choice is the antecedent uncertainty of adjustive action between two or more alternatives . . . . if there be no alternative of adjustment, it is impossible, in an animal at least, to distinguish reflex action from mental adaptation. Accordingly, adjustive actions that are always the same in the same circumstances of adjustment, in short such as depend upon inherited structures in the nervous system may be regarded as devoid of consciousness. In a word the power of learning by individual experience is the criterion of mind."

It is to be observed, that the employment of this criterion has availed Mr. Romanes to distribute the different animal species in a psychological classification summarized in the form of a diagrammatic chart, to which we have already alluded.

Before proceeding further, we are to note, that the criterion proposed by Mr. Romanes must necessarily rest upon the study of his own consciousness, that is to say, of his own subjective impressions. From observing himself live and feel, he has been able to say that such an act is conscious and such an act not conscious. He cites, as illustrative, the reflex actions, which have, he says, a quasi-intellectual activity and which, nevertheless, are devoid of consciousness. We might add thereto that complete class of automatic movements, so many in number, that we perform several hundred times in the course of a day, not only without volition on our part, but without any appreciable element of consciousness whatever involved. If it were required, accordingly, to rely exclusively upon introspection, it would be comparatively easy to mark in every circumstance the limit of consciousness; and the limit once marked, we might say: on this side, there is consciousness, on that unconsciousness. But recent facts, a multitude in number, and observed by so many different investigators that they cannot be questioned, show that the introspective method cannot elucidate the question we have just presented. I am obliged, at this point, to take Mr. Romanes into a province that is not his own, and to speak with him of researches that have been made of late years in France upon the various disorders of consciousness in hysterical individuals. These researches, which are well-known to the readers of THE OPEN COURT, have shown that there exists in individuals affected with hysteria a plurality of consciousnesses; when, for example, we provoke a movement in a member that apparently is totally insensible, that movement is not perceived by what we call the principal consciousness of the subject; but it is taken up by a secondary consciousness which is able to retain the recollection of that perception. There are, accordingly, in such subjects, phenomena that seem to fall without consciousness and which yet are not unconscious; they are, if the expression be allowed, *sub-conscious*. The presence of a plurality of consciousnesses is not, moreover, peculiar to the mental organism of hysterical patients. Analogous disturbances are found in all individuals who present what is called "automatic writing," and we know, at this day, that such subjects are extremely plentiful. These experiments contain a teaching that it is proper to emphasize: namely, that introspection has limits which are not those of consciousness but those of *one* consciousness. There is nothing to prove that in the normal individual many a perception, many a ratiocination are not produced, which never get to the principal consciousness, but which go to form a minor rudimentary consciousness beneath the former. This opinion has been upheld, and not refuted.

Following out these ideas, we are come so far, as to give the word unconsciousness an entirely new meaning; having brought forth that character of systematization found at the basis of every well-organized

consciousness. Our assumed unconsciousness would be nothing more than elements of consciousness that are not coördinated among each other and that do not form a compact synthesis. Thus, to take a typical instance borrowed from my own personal experience, I present a highly complicated automatic movement, consisting of taking a key from my pocket and inserting it in the lock of the door, every time I return to my home. Now, it very frequently happens that when I am about to pay a visit to some friend, I pull the key from my pocket the moment I approach his door. That movement, it is plain, is not voluntary; and it does not become a conscious movement until the key is half inserted in the lock; at this moment, my will intervenes to suppress the act. If we were to trust solely to the evidence of consciousness, we could plainly maintain that this act is unconscious; but the observations I have just advanced forbid asserting anything certain in that regard; it is possible that a phenomenon of consciousness is produced which remains isolated, which does not connect itself with my principal consciousness, and which, consequently, for me is as if it did not exist at all. I do not insist upon this hypothesis, but unquestionably it must be taken into account.

We cannot take Mr. Romanes to task for not having regarded these recent facts, which are of later date than his works. Nevertheless, we must observe that the hypnotic experiments to which I have just alluded, tend considerably to widen the domain of phenomena of consciousness, and materially to weaken the criterion of mind that Mr. Romanes has invented. I had, accordingly, just reason for saying, at the beginning of this article, that when we deal with a question so delicate as that of consciousness, it is necessary to be very cautious.

Mr. Romanes will not reproach me, I hope, with having far-fetched my arguments; for he has himself expounded, in excellent terms, the nature of the operation termed "*ejection*," which avails us to come at knowledge of other consciousnesses than our own. Mr. Romanes has shown that this operation is accomplished by projecting into the minds of others what has transpired in our own; and every investigation, accordingly, that we make concerning the nature and extent of consciousness in man is of immediate consequence to the so-called ejective method.

But let us leave general considerations aside and examine the thesis of Mr. Romanes more closely. Suppose it were absolutely proven, that to the functional activity of the nervous system there are two parts: a conscious part and an unconscious part; what will follow therefrom? and what is the conclusion that induction will draw from that fact when we come to interpret the psychic life of any animal whatsoever?

The conclusion that to me appears the only just one, is, to translate the inference thus arrived at, into the life of relation of every living organism, and to say that every animal is endowed with a conscious activity and an unconscious activity. We shall thus assign to every animal, by an effort of induction, the complete result of the introspection that each individual can bring to bear upon himself; and in order to distinguish in every animal the part of consciousness, we will make use of the distinction established with reference to ourselves,—namely, that conscious acts are those which are adapted to new circumstances.

But the supposition cannot be entertained, that a living organism may only present acts of adaptation transmitted by heredity. An author who recognizes, and upholds with the ability of Mr. Romanes, that animal intelligence passes through an evolution comparable to organic evolution,* would contradict himself if he were to allow that certain animal species, not confined to unusual conditions, (as those of parasitism, for instance,) could not possess the power of learning by individual experience. But, as that power is regarded by Mr. Romanes himself as the criterion of mind, it follows, it seems to me, that he was wrong, in making out his diagram, to fix the lower limit of consciousness at the level of the Cœlenterata.

Furthermore, it may be said, that, in treating of theoretical questions of this class, Mr. Romanes is not sufficiently concerned about the origin of those "inherited mechanisms of the nervous system which are so constructed as always to produce the same acts in the same circumstances of stimulation." These mechanisms were not always hereditary; heredity which is nothing but a preservative force, a memory of the species, supposes an anterior power of acquisition. The sucking of the teat, which is one of the earliest hereditary acts of the human race, may be explained by heredity among the mammifers; but in order that that power may have been transmitted, it must have been acquired; and the acquisition must have taken place at the time of the formation of the mammiferous type.† If we apply the criterion of Mr. Romanes to cases of this class, we are forced to the conclusion, that consciousness is present at the beginning of all acts and movements of adaptation.

I embrace neither side, upon this question, which, it seems to me, at the present time is not ripe for solution. I confine myself to pointing out my reasons for not having accepted the criterion proposed by Mr. Romanes.

Will he himself always remain true to it? I doubt it.

* Read, for example, his chapter on the Plasticity of Instinct, p. 200, Mental Evolution in Animals.

† On this point, read Mr. Romanes's passage upon the Secondary Instincts, page 189.

Upon again carefully reading his work on "Mental Evolution in Animals," I believe I have come upon a point, in his definition of instinct, very difficult of comprehension. On the one hand, Mr. Romanes says, that "the only distinction between adjustive movements due to reflex action and adjustive movements accompanied by mental perception consists in the former depending on inherited mechanisms within the nervous system being so constructed as to effect particular adjustive movements in response to particular stimulations, while the latter are independent of any such inherited adjustment of special mechanisms to the exigencies of special circumstances." Further on, he insists on "the variable and incalculable character of conscious adjustments as distinguished from the constant and foreseeable character of reflex adjustments." After carefully reading the passage quoted, one is astounded to find instinct defined as "reflex action in which there is an element of consciousness" . . . . notwithstanding "the instinctive action be similarly performed under similar circumstances by all the individuals of the same species."* The contradiction is very apparent.

* * *

But I must stop. I believe I have said sufficient to convince my readers that the question of consciousness is extremely difficult, both to put and to solve; and that rather than to lose one's time in examining that problem, it is much better to make observations and to institute experiments.

The merit of the scientific labors of Mr. Romanes lies quite in another direction: it consists in the considerable number of observations he has made and the experiments he has instituted in relation to the psychic life of animals; and no one can admire more than I the intelligence and sagacity of which he has given such ample evidence in that domain. I trust, that the criticisms I have herein advanced in defense of my opinions, opposed to his upon a particular point of scientific research—that is, as to whether the study of consciousness in lower animals ought at present to be entered upon—will not prevent the recognition of sympathy I feel with an investigator who upon so many other points defends the ideas that are mine.

PARIS, September, 1889.

ASPECTS OF MODERN PSYCHOLOGY.

PSYCHOLOGY IN GERMANY.

BY JOSEPH JASTROW, PH.D.

HAVING reviewed the general departments of modern psychological research, I shall attempt to portray in the light of a recent European tour, the actual condition of the study in the chief educational countries of Europe, and will append to this some notes upon psychological progress at home. The present contribution will deal with Germany and indirectly with the educationally allied countries of Austria and Northern Europe.

The two most prominent German contributions to psychology are in completing our knowledge of the physiological bases of mental action and in posing and partially solving the specifically psycho-physical problems of Experimental Psychology. The former developed naturally from the restoration to recognized kinship of two sciences that had become separated by mutual misunderstandings, and had been led to follow divergent paths with only occasional and half-concealed communications between them. While at first this new relation seemed to take the psychologist into fields far removed from his specialty, the frequent discoveries of psychologically important facts in unexpected quarters of this domain have deepened his interest in the labors of his brother scientists. The modern problem, to the elaboration of which Germany has so largely contributed, is the detailed investigation of the functional nexus between portions of the nervous system and the complex of activities that constitute life. This problem becomes most interesting as well as most difficult in relation to the nervous system of man. At first the methods of gross anatomy and finer dissection revealed all that was known of the nervous system, but with the marvellously increased powers furnished by the microscope and the accompanying technique of section-cutting, hardening, and staining, with, too, the utilization of pathological conditions and of embryological formations, for studying normal relations, our notions of the wonderful complexity of the nervous system has been enlarged beyond all expectation and the range of physiological problems proportionately extended.*

It would carry us too far into details were we to attempt a resumé of the current facts and conceptions

* P. 159

* The chief anatomical methods of to-day are: (1) The methods of coarse dissection and fibering; (2) Section cutting and a variety of stainings to bring out and differentiate the different elements of nervous tissue (the first section was cut by Stilling, in 1842); (3) The method of studyiog the progress of degeneration in nerves when cut at various points, introduced about 1850, and soon followed by (4) The application of the same principle to the effect of disease in man; (5) Gudden's method of extirpating a peripheral or central portion of the nervous system in a young animal and observing what parts fail to develop, with (6) The application of this to abnormal conditions in man, *e. g.*, when a man is born without arms and the ganglion cells of the cervical enlargement are found shrunken or absent; (7) The study of the embryological appearances, it being found that the several fibre-systems appear and are enclosed in their medullary sheaths (rendering them capable of functioning) at different periods, and thus making possible an analysis extremely difficult in the adult (Flechsig, 1872, on); and (9) The method of comparative anatomy, *i. e.*, noting the relative development of parts in differently endowed types of animals. For a concise statement of results in this field see Edinger, "*Zehn Vorlesungen über den Bau der Nervösen Central-Organe*," 1885. Or more fully and recently Obersteiner, *Anleitung bei Studium des Baues der Nervösen Central-Organe*, 1888. Special works are by Flechsig, Meynert (Translated), Von Gudden. Diagrammatic schemes are given by Flechsig, Aeby, and Rohon

respecting the structure and function of the nerve-cell (the nucleus of which is now believed to be the origin of its growth, shrinking when the cell is over-stimulated, paling away when the function is lost and containing within itself the ultimate elements of the forces of heredity); the growth, functioning, and decay of nerve fibres; the demonstration by a variety of mutually corroborative methods of the columns of fibres in the spinal cord, to which, generally speaking, the various sensory nerves contribute as they ascend posteriorly, and from which the motor nerves emerge anteriorly; the reflex-centres of the gray matter of the cord, the properties of which, though mechanical, are so purposive in their nature as to lead some physiologists to speak of a "spinal-cord soul" and which though in a measure independent of the higher centres serve a most delicate and valued index of the efficiency of the whole organism; the centres of the *medulla oblongata* that regulate for us the functions of mere living and so leave our brains free to make life worth living; the complex system of centres lying near the base of the brain and collectively known as the basal ganglia, that may be regarded as an efficient force of clerks registering and controlling that large class of more or less habitual actions, that no longer need our voluntary and conscious attention and so have been handed over to our automata; the centres of the cerebellum specially related to the process of locomotion; and supreme in the hierarchy of nervous centres, the crowning centralizing power, the cortex of the cerebrum where lie, "half-concealed and half-revealed," the mysterious properties by virtue of which an impression is followed by an expression, the subject comes into relation with the object, and knowledge and development become possible.* It would carry us still further into details to trace the connections between these various centres: the fibres of the corpus callosum that bind the two hemispheres of the brain together and perhaps prevent the dissolution of personality that seems to be a favorite fancy of imaginative writers; the complication of relations introduced by the duplication of parts in the two halves of the body, and furthermore by the decussation of the fibres in their course from end-organ to brain, so that the right brain feels the pinch in the left hand, and the race is largely right-handed because it is left-brained; the fibres of the corona radiata spreading in all directions from the basal ganglia and lower centres to the cortex of the brain; the associative fibres uniting different centres of the same hemisphere as well as neighboring convolutions with one another. All these have passed from the stage in which they were personal or national contributions and have become part of the common knowledge of mankind.

The results just enumerated were elaborated by physiologists and as furthering the progress of their own science; their psychological importance being recognized by the modern school of psychologists. We turn now to the contributions of the latter to the foundation of their own speciality. The leader in this movement is Prof. Wilhelm Wundt, of Leipzig, who in 1879 established there the first exclusively psychological laboratory. He, too, first brought together the scattered results in this domain (*Physiologische Psychologie*, first edition 1874, 2d 1880, 3d 1887) and effected the recognition of the new science by the scientific world at large. For anything like an adequate account of the problems and results of German psychological activity, one must refer to Wundt's treatise (closely followed by Ladd in his "Elements of Physiological Psychology") and for special studies to the numbers of the *Philosophische Studien* published by Wundt since 1882. It must suffice here to indicate the several lines of study and the general direction of advance.

What has been said in general under the head of experimental psychology applies with equal truth to German psychology in particular. The study of the psycho-physic law both theoretically and experimentally, is essentially a German study. Besides the work of Fechner himself and the important contributions of Prof. Müller, of Göttingen, Wundt and his pupils have done much towards establishing to what senses the law applies, within what limits its validity is confined, what factors contribute to, or interfere with, its applicability, what methods and precautions must be used in testing it. It is impossible to express in a few words the present condition of the study, though I may venture the statement that the law seems to hold approximately for sensations within the ordinary range of intensity—and for sensations yielding information sufficiently definite and yet not definite enough to be apperceived as quantitatively composed.

The measurement of the time taken up by mental processes has been the favorite study in Wundt's laboratory for several years. The results have taught us how long it takes to signal that we have perceived a sight, a sound, or a touch; how long to recognize the character of a sensation, say, that a color is blue or a

* These researches lead up to, and centre in, the localization of function in the cortex of the brain upon which so many scholars have concentrated their efforts, and which promises to form a permanent landmark in the history of physiology. The researches take their origin in the discovery of the electrical excitability of the cortex in 1870 by Fritsch and Hitzig, though in part connected with the earlier localization of the motor speech-centre (Broca's convolution) by the French physiologists. The chief methods are the method of irritation, observing the movements, etc., following the stimulation of definite areas of the cortex; the extirpation method, removing such areas and noting the impairment of function that follows; the method of pathology that correlates abnormal symptoms with *post-mortem* appearances besides the physiological applications of the anatomical methods above indicated. Very much of this work has been done and is going on in Germany, and the principal workers who have all published extensively on the question are, Exner (Vienna), Munk (Berlin), Goltz (Strassburg), and others.

tone high; how long to make similar distinctions with letters, with sounds, and how this time increases as there are more and more impressions amongst which a distinction is to be made; how long it takes to will to move our right hand or our left, and how much longer to move a given one of the *ten* fingers; how long for one idea to call up another and how much longer when the nature of the association is limited, *e. g.*, when the relation between the words must be that of whole to part; how long to name a letter, or a picture; how long to translate a word or name an object in a foreign language; how long to form a simple judgment; to perform an easy numerical calculation or recall an item of information. Not the time-measurements merely, but the theories of mental acquisition that the results favor and the influences that vary the results have been carefully studied. The nature and intensity of the impression, the preparedness of the subject, the fore knowledge of the nature of the stimulus, and the direction of the attention, whether upon the sensation or upon the movement,—are all important factors. Mental weariness, sensory fatigue, irregular and unexpected impressions usually lengthen the process, while the action of drugs and semi-morbid conditions show another class of influences. The individual variations or 'personal equation' of the astronomers, with whom indeed this study originated, also affects the result; the general law being that the more complex the operation the greater are the differences in the times that it takes different persons to perform it. Again, the curve of practice has been experimentally derived, and the gradual shortening of the time in school-children, as they advance from class to class, and conversely the extreme lengths of these times in the dull and weak-minded suggest the practical importance of such studies. Nor is the field limited to these more elementary processes; as the results themselves indicate a valid analysis of the processes of cognition, the researches are being pushed further on into the study of the higher faculties. We already have a valuable experimental study of memory by Dr. Ebbinghaus, and an ingenious investigation of complex associations and judgments by Dr. Münsterberg. Here too the study of the time is necessarily combined with a study of the nature of the mental operation in question. It may not be too venturesome to predict that the laws of association for which so many philosophers have earnestly striven, can only be adequately established on the basis of such experimental methods, and that these alone can bring about a correct appreciation of the laws of memory, that will make impossible the recent phenomenal success of a pseudo-psychological adventurer.

There remains the consideration of the study of the senses in other aspects than those treated, not to speak of the variety of miscellaneous problems gradually entering the domain of experimental psychology. The problems are here so many and so various as to make even a bare mention of them exceed the space at my disposal. As problems central in the interests of German psychologists may be mentioned the researches growing out of the discovery of Weber, that there is for each part of the skin a limit at which the points of a pair of compasses will be perceived as two. On the forefinger two points separated by one-twentieth of an inch seem as one point, on the back of the neck they may be separated by over an inch and still seem as one. The theory of "sensory circles" has been devised to explain these facts. But the survey of the field is too incomplete to warrant the acceptance of any theory as final. The study of dermal sensibility has been enriched by the discovery of the 'hot' and 'cold points,' or areas in which a body of neutral temperature gives rise to distinct sensations of heat and cold; the possibility of pressure-points has also been indicated. The nature of the muscular-sense with the discussion of the 'innervation theory' is another closely allied department of research. A second important group of problems deals with the analysis of musical sensations to which Helmholz has contributed so largely; it may be sufficient to mention the work of Prof. Stumpf, the Halle psychologist, (now appearing in several volumes,) as an evidence of the continued interest in this field. As a third central point may be mentioned the psychology of vision. Although much attention has been given to other problems, the main interest has been in those that contribute evidence bearing upon the theory of color vision, Helmholz and Hering being the recognized leaders of the two views, and upon the great controversy between nativists and empiricists upon the perception of space. In connection with these, however, a large number of subsidiary points have been investigated. The sensitiveness of the retina in its different portions to form, color, and motion; the estimation of size and distance; the perception of solidity as illustrated by that truly psychological instrument, the stereoscope; the relations of sight and touch and the coördination of sensory with motor visual factors, are some of the dominant lines of interest in psycho-physiological optics.

While these are the departments of psychology specially cultivated in Germany, it can be fairly said that there is no promising line of investigation to which the Germans have not contributed. Prof. Preyer has written the most comprehensive treatise on child-development; we have many valuable German studies of animal psychology both experimental and theoretical; Prof. Bastian, of Berlin, is an acknowledged leader of the psychological anthropologists; while in morbid psychology we have the most excellent con-

tributions of Krafft-Ebbing, (Vienna,) and Emminghaus, (Freiburg,) of Kussmaul, (Strassburg,) and Wildbrand, (Hamburg). The phenomena of hypnotism are attracting the attention of German psychologists with renewed interest, and they have introduced into this study a valuable critical element. And finally the application of psychology to the German specialty, education, has resulted in the science of pedagogical psychology.

Before leaving the topic of German psychology, it may be worth while to survey the local centres of interest to obtain the basis for an outlook upon the future. The physiological, the anthropological, the comparative and morbid aspects of psychology have a sufficient guarantee of vitality in their growing practical importance, and in the various classes of specialists whose interests they command. It is rather for experimental psychology, as creating new realms and methods of investigation and in part running counter to the traditional psychology, that special provision must be made. The influence of the psychological laboratory at Leipzic is spreading, and the foreign students studying there have, in several cases, succeeded in introducing similar innovations in their own countries. Prof. G. E. Müller, of Göttingen, has established a laboratory at that university, and Dr. Ebbinghaus has done the same at Berlin. Dr. Münsterberg of the University of Freiburg deserves great credit for the laboratory which he privately maintains there. Similar plans are under consideration for the universities of Bonn, of Breslau, of Prague, and doubtless elsewhere. Psychological societies have been formed, though the most prominent of these the *Gesellschaft für Experimental-Psychologie*, of Berlin and of Munich, devote their efforts mainly to the problems of "Psychic Research." The many literary contributions both as special studies and as periodical essays testify to the rapid progress of psychology in all parts of Germany. A serious obstacle to the growth of the department has been the difficulty of obtaining pecuniary aid from the State; this difficulty being increased by the isolation of the several parts of a German university, that prevents an easy affiliation of the psychological laboratory to the kindred departments of physiology or physics. There can be little doubt that as the special needs of experimental psychology are more distinctly appreciated, these hindrances to its free development will be gradually removed.*

* For further information concerning German psychology I can only refer in Englisb to Ribot's "German Psychology of To-day," (by no means as good a compilation as his other works,) and to articles by Prof. Hall and by Dr. Cattell, published in *Mind*. Tbere are very few general articles or treatises on the aims and methods of the new psychology in any language; in German one may consult a few of Wundt's "Essays," and a lecture by Dr. Götz Martius, *Ueber die Ziele und Ergebnisse der Experimentellen Psychologie*, 1888.

CENTRAL AND PERIPHERAL SOUL-LIFE.

THE experiments of M. Alfred Binet* prove that in the limbs and sense-organs of hysterical persons we can provoke various complex movements of adaptation which are performed without consciousness. There are certain details of vision that escape consciousness, yet are perceived by the eye. Similarly the anæsthetic hand, a hand that from a nervous disease is deprived of sensibility, jots down in automatic writing impressions which it receives. The hand is called anæsthetic because the patient knows nothing about it; it is not in connection with his consciousness. M. Binet proves that feeling is not extinct in it; for it has a feeling of its own and its psychic acts show a certain intelligence or adaptability.

The experiments of M. Binet are instances of peripheral nerve-activity not entering into the sphere of central soul-life.

Experiments of a similar kind were made by the late Mr. Gurney, one of the founders of the Society for Psychical Research of London. From an account† of his experiments on "Intelligent Automatism," reported, in the main, in Mr. Gurney's own words, we quote the following:

"Mr. G. A. Smith, the 'hypnotiser,' sent off one of the patients into a mesmeric sleep, and in this sleep the patient was told that he was to write some particular word, or to count the number of *e*'s in a particular verse, or to do a particular multiplication sum when he awoke. . . . . Then he was wakened and at once engaged in reading aloud, or counting backwards, or doing something that engrossed his full attention; but his right hand was placed on the planchette (an instrument on wheels containing a pencil), the paper and planchette being always concealed from the subject's eyes, so that he could not know, unless he were able to guess from the blind movements of the instrument under his hand (which guessing was made very difficult by the occupation found for him), what letters or figures (if any) the instrument was tracing. 'As a rule, he was always offered a sovereign to say what the writing was, but the reward was never gained.' On being sent back into the mesmeric sleep, he recalled the whole process, though in the waking state he could never tell what the movements of the planchette under his hand were engaged in producing. Here is Mr. Gurney's account of the results as regards the arithmetical sums worked by what he calls the 'secondary intelligence':—

"The sums given were simple, as most of the 'subjects' were inexpert at mental arithmetic. There were 131 sums in which three figures had to be multiplied by a single one; of these 52 were quite right, 28 had three figures in the answer right, 18 had two figures right, and 14 had one figure right only, whilst 12 were quite wrong, and 7 were either so illegible and muddled as to be undecipherable, or only a small stroke or curve was made at all. . . . . In some cases the sum itself was correctly written, but no attempt was made to put the answer. . . . . A few sums of other kinds were also given: of 14 simple additions (of about the following difficulty: $4 + 7 + 9 + 11 + 13$), six were done correctly, two were

* Published in THE OPEN COURT: No. 100, "Proof of Double Consciousness in Hysterical Individuals"; No. 101, "The Relations Between the Two Consciousnesses of Hysterical Individuals"; No. 102, "The Hysterical Eye"; and No. 112, "Mechanism or Subconsciousness?"

† *Spectator*, June 30, 1888.

quite wrong, and the remaining six were either not done at all, or the answers were illegible scribbles. . . . . Another case illustrates the very distinct memory, on re-hypnotisation, of what had been written. Wells was told to work out the sum, '13 loaves at 5d. each,' and instantly woke as usual. He wrote, '13 loaf at 5d. is 5s. 5d.' When hypnotized again, and asked to say what he had written, he replied, '13 loaf—oh, I've put *loaf* instead of *loaves*—at 5d. is 5s. 5d. I've written the 13 twice—see—but I crossed it out.' He then proceeded, by a long roundabout process, to work the problem out, arriving at the correct answer again.

"Another form of experiment was to tell the 'subject' to count the number of times a certain letter occurred in a given verse. Thus, Wells was told to write down the number of times the letter *e* occurred in the verse—"Mary had a little lamb, etc.," and then, after saying the verse once quickly through to show that he knew it, he was instantly awakened and given *Tit-Bits* to read. Whilst thus engaged he wrote, *The letter E comes 11 times*—which is right. The same experiment was tried with Parsons, who also was kept occupied by being set to read immediately upon waking; but he was not so accurate, and wrote down '12.' He was completely successful, however, when told to write the number of *e*'s in

'God save our gracious Queen,
Long live our noble Queen,
God save the Queen,'

and wrote 11, having read excellently the whole time."

Concerning Mr. Gurney's explanation of these facts, the same account adds:

"His inference is that these trances induced by mesmerism, or whatever we like to call the peculiar influence which special persons seem to possess of rendering others unconscious,—separates the mind of the patient into two separate planes of consciousness, each of which is capable of accomplishing such simple intellectual tasks as the subject's education has fitted him to perform, but nevertheless without the privity of the other, so that the man is apparently subdivided into two men, one of whom is reading aloud, and the other working a sum or counting the number of *e*'s in a stanza, though the man who is doing the sum has little or no knowledge of what his *alter ego* is reading aloud; while the man who is reading aloud has no knowledge at all of the operations of the *alter ego* who is doing the sum."

According to our view these two souls are not two different beings, but they are psychic activities performed in two different spheres—the spheres of central and peripheral soul-life. If the activity of peripheral soul-life is not connected with that of the central soul-life, the central soul can know nothing about the processes that take place in the peripheral regions of our mind. Accordingly we call them *unconscious*. If the peripheral nerve-activity is indirectly, yet not too distantly, connected with the central soul, we may have a dim idea of its proceedings. Thus, we do not know whether the nerves of our intestines are now secreting particles of fat or albuminoids or any other substance, yet we can know upon the whole whether or not they are in a state of health. Such conditions we call *subconscious*.

The experiments of Mr. Gurney as well as those of M. Binet corroborate the fact that every nervous ganglion is a brain in miniature, as *vice versa* the whole brain is but a centralization of many ganglions. All nervous substance exhibits, in the performance of the psychic functions of irritation and reflex motion throughout, a marvelous adaptability to circumstances. Thus, the decapitated frog, when his back is irritated on the right side by a feather saturated in a solution of hydrochloric acid, scratches the spot and removes the irritant.

This might be called a simple reflex motion and can perhaps be explained as purely mechanical. Formerly it was believed to take place without any consciousness. But now it is known, that if the frog's right leg be amputated and his back be again irritated, after several unsuccessful trials to remove the irritant by his right leg, he will use his left leg.

This is plainly a process of adaptation to circumstances. The central soul of the decapitated frog, as can be proven by other experiments, has been removed; but parts of the peripheral soul still continue their activity in the spinal cord so long as the nervous substance remains in a condition of comparative health. And the activity of the peripheral nerve-substance cannot be merely mechanical as are the movements of a machine; judging from the experiment of the frog, they must be psychical at the same time. The mechanism of nervous reflex-motions lives and feels. Even the peripheral ganglions possess a kind of consciousness of their own, dim though it may be.

There is no difference of kind between the peripheral and central soul, there is a difference of degree only. And the difference that obtains is undoubtedly produced by a division of labor. This will at the same time explain the fact that the lower a nervous system is, the more independent are its peripherial ganglia. The central soul-life is less differentiated in a frog than in man, and still less in a colonial sea-nettle.

The decapitated-frog experiment is in so far to the same purpose as Mr. Gurney's and M. Binet's experiments, for it proves the independent action of peripheral soul-life without any interference of, or connection with, central soul-life.

The phenomena of peripheral and central soul-life are not a coördinated duality; they form a hierarchical, *i. e.*, a super-ordinated system. The central soul rises from the peripheral soul. The former being taken away, the latter may continue to exist; but we see no possibility for the central soul to exist, if its foundation, the peripheral soul, is withdrawn. We can remove the spire of a church-steeple, and let the base stand, but we can not remove the base and have the spire remain in its place. Thus the central soul of consciousness, being the combined product of a certain part of the activity of the peripheral soul, can not lead an absolute life of abstract existence. It subsists and can subsist only upon condition of the peripheral activity of the nervous system.

How closely the central and the peripheral activities

are interwoven, can be learned from the facts of post-hypnotic suggestions. Mr. Gurney's experiments were purposely so arranged as to make the execution of a post-hypnotic suggestion an act of automatic and unconscious intelligence. This, however, is a special case only and indeed an exception.

Post-hypnotic suggestions, as a rule, rise from the peripheral sphere of unconscious life into the region of consciousness. There they appear as if created out of nothing in no other manner than inspirations may come to a poet. The central soul is in possession of certain data; but it can, out of itself merely, give no account of their origin. A number of conscious ideas are a living presence in the mind, and that is all that from consciousness alone can be learned. Their factors may be, and usually are, hidden in the depth of unconsciousness. The result only of nervous activity becomes conscious, but not the details of its conditions. Consciousness knows least of all about the nervous fibers, the brain-cells, and their distribution.

The subjects who have received post-hypnotic suggestions deal with them very differently. They either execute them without heeding what they do, almost unconsciously; or, especially if the suggestions are absurd, they try to suppress them. Some succeed in doing so, some yield to their impulse after a vain struggle. Some execute them, and if asked why they act thus, they either invent a plausible motive or answer that the idea just struck them to do it.

We quote an example from Forel's latest publication on Hypnotism:

"I said to a hypnotized patient: 'After awaking the idea will occur to you to place a chair upon the table, and then to tap me on the left shoulder with your right hand.' I then ordered him to do several other things, adding: 'Count as far as six, and awake.' The patient counted and when he reached six, opened his eyes drowsily, saw a chair and stared at it.—Often there arises a conflict between reason and the powerful impulse of suggestion. Either the former or the latter will gain the upper hand according as the suggestion is natural or unnatural and as the hynotized subject is suggestible. Our hypnotized subject after having stared at the chair for awhile, suddenly rose, took the chair and placed it on the table I said: 'Why do you do this?' The reply always varies according to the culture, temperament, and quality of the hypnotized subject and of the hypnosis. One will say: 'I followed my impulse.' Another: 'The idea occurred to me.' A third alleges an a posteriori motive saying, the chair had been in his way, it had bothered him. A fourth after the performance of the action, loses every recollection and appears to awaken at that very moment. Particularly in the last instance the subject has the staring glance of a somnambulist; it is more or less rigid, his movements are automatic, and do not cease to be so until after the performance of the act."

Another curious instance mentioned by Dr. Forel is the following:

"To a hypnotized woman I said on a Monday: 'Next Sunday morning precisely at quarter past seven you will call on me. You will see me in a sky-blue coat, with two long horns on my head, and you will then ask me, when I was born.' Next Sunday I was sitting in my study, and had forgotten the whole affair. My patient at thirty-five minutes past seven knocked at my door, entered, and burst into laughter. I at once recollected my suggestion, which now was actually realized, exactly in the manner it was given."

In the waking state the central soul plays a dominant part. This is accomplished positively as well as negatively; positively by concentration and negatively by inhibition. The consciousness of the central soul can be and usually is concentrated upon one object, *viz.*, the object of attention. But all the many sensory impressions that are received in all quarters of the periphery would greatly detract from the clearness of attention, if they were constantly permitted to enter the sphere of the central soul and to interfere with its activity. The central soul, if concentrated upon a subject of interest, sees fit not to heed other things, it suppresses their observation.

For instance, I am writing now and do not notice certain noises about me. I look up from my paper to collect my thoughts, but I do not observe the scenes outside of the window upon which I look. They are indifferent to me, and if afterwards asked what I had heard or what I had seen, most likely I should not be able to tell. I heard the noises—the word "I" here signifies my ears; I heard certain words but I did not listen—the word "I" here signifies my consciousness. I saw certain things, but I did not look; so I cannot tell what I heard or what I saw. My consciousness on the one hand, and my eyes or ears on the other, are two different things.

It may happen, however, that the sound of a word that I did not heed lingers in my memory still. I recall the sound, and now I perceive its meaning too. A certain scene that I glanced at in an absent-minded state, may have impressed itself strongly enough as afterwards to come up in my recollection. Some persons passed by; my eye had seen them, but I had taken no notice of them. Being asked whether a certain acquaintance of mine had been among them, I might then positively know that he was.

If we could ask the eye, it would certainly always be able to tell what it had seen. If we could look into the memories registered in some of the sensory ganglions, we could know what scenes were photographed by the eye; for every scene upon which the eye looked is registered in nerve-substance. We can, however, not expect to recollect a sensation that was prohibited to enter, and thus never entered, our consciousness.

Max Dessoir* gives an account that, if thoroughly reliable, is of great interest.

"Several friends were at my house, and one of them, Mr. W——, sat apart reading, while we others were talking together. Suddenly the conversation turned upon a name X——, which particularly interested Mr. W——. He abruptly turned round, and asked what had happened to Mr. X—— He declared, that

* *Das Doppel-ich*, p. 19.

he knew nothing of our previous conversation; and that he only had heard the name mentioned. Then, with his consent, I hypnotized him, and in the state of deep hypnosis I asked him again, and to our great astonishment he coherently related the whole trend of the conversation that took place while he was reading."

In another passage Dessoir says:

"The idea of the husband when his wife scolded him for having mislaid the house-key at the inn, was after all not bad. "Wait—said he—until I get drunk again, and I shall certainly find out where I left it."

It is noteworthy, that in dreams as well as in states of intoxication, certain people seem upon the whole to reveal always a similar character which, however, may greatly differ from their normal condition. The conscious life of the central soul being extinguished, and the inhibition that in the waking state is constantly exercised being abolished, the peripheral soul-life oozes out in its originality, and however it may differ from the waking state it shows again and again, under similar circumstances, naturally similar traits of character. There is accordingly a truth in the Latin proverb: "*In vino veritas.*"

The same may be said about dreams. Dreams reveal to us characteristic features of our peripheral soul-life.

P. C.

CONTEMPORANEOUS FRENCH PHILOSOPHY.*

CORRESPONDENCE OF LUCIEN ARREAT.

My Dear Sir:—In assigning to me the task of writing for your review the philosophical correspondence of France, you have rightly inferred that it would be of especial interest to present, upon this occasion, what I am pleased to call, with reference to recent philosophical publications, a *critique de position.* So allow me, therefore, without further preamble to introduce the subject to your readers.

The philosophers of France, it is unnecessary to say, have been concerned at all times with the subject of a general philosophy; but since the performance of Auguste Comte, now become a thing of the past, there has not been produced among us any conception of a truly general character. The numerous problems of philosophy are being probed and renovated at basal points, and whenever the ambition is evinced to construct some partial synthesis, it usually happens in the domain of psychology and from the point of view of the evolution of the phenomena involved. Even psychology, which has become the centre of philosophical researches, no longer remains strictly physiological; people, nowadays, have begun to pay greater attention to the data of sociology and history.

In support of the last brief statement I might adduce the entire literary activity of the late M. Guyau. M. Fouillée, with painstaking devotion is now superintending the publication of the manuscripts of the much-lamented young master, and two volumes have recently appeared under the titles of "Education and Heredity, A Sociological Study" and "Art From a Sociological Point of View." Let it suffice, merely to call attention to the latter works. M. Guyau at all times deservedly engages our curiosity, and your readers know too well the fundamental character and content of his ideas to justify the need of a present exposition of the same. Whether as moralist or æsthetician, as psychologist or critical historian, Guyau ever strove ultimately to reach a conception of the world—a theory of cosmic philosophy. This feature of his character must not be overlooked, if we wish correctly to appreciate as well the breadth as the partial prematurity of his mode of thought.

In the same line, we must mention a small volume by M. de Roberty: "The Unknowable, Its Metaphysics and Psychology," (*L'inconnaissable, sa métaphysique, sa psychologie*). A Russian by birth, M. de Roberty passed through the school of Comte, and published his first important works in the review edited by the late M. Littré. According to M. de Roberty, philosophy hitherto has not been a theory of Knowledge, as it has been called, but rather a theory of the Unknowable (in Kant's works for the greater part, in one-half of Spencer, and to a notable extent with Comte himself). In this book,—a mere skirmish by the van-guard, to use the writer's own words,—the author shows us, that the problem of the Unknowable is only a metaphysical aspect of the problem of the limits of knowledge, and that agnosticism is but a transient historical position. M. de Roberty's criticism is new and profound; it certainly places us in a logical, or methodical, position, that is much more correct. We can only ask, whether, in the face of the problem of the world, and the reduction of the unknowable to the unknown, we shall meanwhile be able to transform ourselves into pure "intellectuals," without still remaining "emotionals,"—I mean to say, poets. At all events, in the opinion of M. de Roberty, a great synthesis does not seem possible before sociology and psychology have been constructed; and as regards psychology, which in the disguise of a general science is now sallying forth to the conquest of the universe, the author relegates the same to the primary school of facts.

And what, the question at this juncture arises, is the present status of psychology? In France there has been no attempt to create a complete work after the manner of Wundt or of Spencer; but there has been the more modest and, doubtless, more useful production of good monographs. The most remarkable of the present year has been "The Psychology of Attention," by M. Ribot, of which I need not speak, since you are offering your readers a translation of the same.

By far more extensive, although even more special, is M. Paulhan's book, "Mental Activity and the Elements of Mind." M. Paulhan explains the entire mechanism of mind by the general law of systematic association (and, as complemental thereto, by that of inhibition) which is a law of finality; to this law he subordinates the secondary forms, association by contrast, by resemblance, by contiguity—and he thus succeeds in destroying, or rather he reduces to a very modest rôle, the English theory of associationism. The dominant idea of the book is that mind represents a totality of *active* elements, differently arranged, that is, made up of various systems of tendencies, dèsires, etc., systems constituting real sub-personalities, in variable equilibrium with one another, and of which the true personality, which we may call the predominant, the directive one, is merely a kind of resultant. The points of connection of this theory with the researches of M. Luys and of M. Binet are at once manifest, and it is scarcely necessary to point out the line of work of these authors to bring under one identical comprehensive fact all the phenomena presented to us under the normal or pathological forms of dreams, natural or provoked somnambulism, etc.

The voluminous treatise, teeming with facts, by M. Pierre Janet—*Psychological Automatism*, etc.,—comes like a capstone to the book of M. Paulhan. The object of the present investigation, the author says, is human activity in its simplest and most elementary forms; and he adds: "This study of the elementary forms of activity will be for us at the same time the study of the elementary forms of sensibility and of consciousness." M Janet has gathered his teachings from persistent and patient experiments upon the state of provoked somnambulism. As you well know, he

*All the herein-mentioned works are contained in the *Bibliothèque de philosophie contemporaine.* Paris: Félix Alcan, Publisher.

is of the number of those, who have successfully devoted themselves to this branch of study, in which the philosophers of France are the foremost leaders.

Consciousness, according to M. Janet, is ever present in the activity of a living being: consciousness is always an organisation, more or less complex, of elements of sensation, and therefore it might be defined as a "synthetical activity." On the other hand, the syntheses constructed are not destroyed, they last, are preserved; they constitute, finally, the consequences of the general law of preservation and of reproduction examined in this work. Automatism thus corresponds to a severance, more or less wide, of the two activities, the creative and the conservative.

There remains to point out a fact of historical significance—the return to Maine de Biran, who, writes M. Janet, seems truly "to have foreseen the experiments that are at present being made." This somewhat forgotten French philosopher further experiences a kind of revival in M. A. Bertrand's book: *La psychologie de l'effort et les doctrines contemporaines*, (The Psychology of Effort and Current Theories Regarding the Same). To Maine de Biran must certainly be referred the earliest French theory of unconsciousness.

In establishing these legitimate returns to the great ones of the past—to Leibnitz or to Maine de Biran, to Descartes or to Spinoza—we cannot avoid acknowledging a certain unity of direction even in the bewildering mazes of philosophy. Particularly, however, in the works of the moderns, divergent though they be, is this progression towards unity of method to be remarked. In this way alone may we hope for harmony and that universal assent which is one of the elements of human certainty.

Paris, October 24th. LUCIEN ARREAT.

SONNET.

BY MARY MORGAN (GOWAN LEA).

"The pursuits of the simple nations are still the sports of the artificial ones."—THOREAU.

A TRUCE to work! Behold the star of eve!
Down with the pen and join the merry throng,
The jocund sport; for may it not belong
Also to life? Shall man not know to weave

Into Time's sombre woof one thread of joy?
Abandon, dare he not, the irksome task
A moment in the sunshine's glow to bask?
My soul responded, "Pleasure, too, doth cloy

Excepting as it be with progress found.
Deem not that labor is of joy the foe:
With heart and mind harmonious there is nought
Confers such lasting happiness below.
Unite the chords of life in one glad sound;
Sublimest work of blessedness is wrought!

CORRESPONDENCE.

A DEFENCE OF CELIBACY AND CELIBATES.

To the Editor of THE OPEN COURT:—

IT is not a little amusing to observe the manner in which Mrs. Susan Channing treated her subject, "Celibacy and its Effects upon the Individual," in THE OPEN COURT for October 31, 1889. Her argument reminds one of the person who accidentally puts salt in his coffee, mistaking it for sugar, but heroically holds his peace until his companion has done likewise. In other words, it would seem from Mrs. Channing's article that human nature is the same—that misery still loves company, however much the philanthropic enthusiast may declare to the contrary.

Everybody will, no doubt, agree with Moncure D. Conway and Mrs. Channing that there is no English word or even a chart of the passionate relations of the sexes. Nor can there be. It is entirely contrary to the laws of nature. The experience of one can by no manner of means serve as a beacon-guide for another, and just as the wind that would anchor one in the peaceful harbor of safety might dash another upon the rocks of Scylla and Charybdis. Hence no rule, or chart, or guide can be adopted, however much, and how greatly, one might be demanded by those who sail upon the uncertain and often tempestuous sea of matrimony. Each must work out his own salvation, the temperament and disposition entailed by heredity having greatly to do with the final result, whether it be good or bad.

While some of the writer's arguments may be good—indeed, she builds up a strong case, and shows great research—the attempt to prove deterioration as one of the universal results of celibacy is certainly considerably attenuated and consequently weak, if not an utter failure. If a man or woman choses to forego the pleasures resultant upon a gratification of the sex-affection, or even those in whom the development of this qualification for manhood and womanhood is not so great, and devotes his time to the cause and investigation of science, art, literature, music, etc., as thousands have done and will continue to do as long as the world stands, do the grand discoveries they have made and may make, the glorious works of art produced, the inspiring epics and elegies written, have the least tendency to degrade or tear down the grand fabric of human intelligence and progress? On the contrary, these discoveries and productions build up and make nobler and better the human race; they serve as an example of what excellence may be achieved by perseverance and labor when the mind is free to act at will, and not hampered by domestic broils and troubles.

Very difficult would be the task of him to whom would be assigned the task or duty of estimating the amount of good done to the world by the works of that world-renowned Italian bachelor, Michael Angelo, whose wonderful creations have been the admiration of all civilized nations since the fifteenth century; who does not dwell with ecstasy upon that sublime old doxology written in the seventeenth century, "Praise God from Whom all Blessings Flow," by the bachelor bishop, Kenbein the author; also the soul inspiring hymns of dear old Isaac Watts, Toplady, Dr. Mühlenberg, author of "I would not live alway," Montgomery, Cowper, etc., among hymn-writers. Other illustrations innumerable of the beneficent effects that bachelors, or their works, have had upon the human race through all ages might be cited, but the names of a limited number must suffice: Grey, Berridge, David Hume, Horn Tooke, John Randolph, Washington Irving, Baron Humboldt, Samuel J. Tilden, Thaddeus Stevens, the late ex-Vice-President Wilson, Alexander Stephens, Allen Thorndike Rice, John G. Whittier, Governor David B. Hill, of New York, Phillips Brookes, and hosts of others almost equally as prominent and illustrious.

Nor should examples of the value of single women to their fellow beings be omitted. Thousands have been made better for having read the impassioned poetical compositions of the Carey sisters, Alice and Phœbe, and no one can witness the wonderful delineations of dramatic art as depicted by that woman of whom every true American should be proud, Mary Anderson, without being moved by tender thoughts and lofty aspirations. Scores of others could be cited, if necessary, but these will suffice at this time.

The divine injunction that "It is not good that THE man should be alone," no doubt had reference to Adam alone, else why does the article *the* precede the word man? Had no one else appeared upon the scene there can be no doubt that Adam would have become lonesome and exclaimed with Alexander Selkirk, "Oh, solitude, where are thy charms?" However this may be, many will seriously doubt whether Mrs. Channing or anybody else would desire to fulfill all the demands and obey all the laws of the Old Testament, where this injunction, that it is not good for

man to live alone, is found, which is always quoted as a clincher by those who incessantly advocate marriage early and often, apparently without regard to fitness or qualification on the part of the interested parties to the important event. What was good and meet for Adam many thousands of years ago, might not hold good in all instances in the light of the intelligence of the closing years of the nineteenth century.

Some over-zealous people declare with more vehemence than logic that it is the divine duty of every man and every woman to take upon himself or herself the responsibilities of a family, regardless of qualifications for the same. Rev. Dr. T. DeWitt Talmage in a recent sermon to women made use of the following terse and sensible language: "Woman was an independent creation, and was intended, if she chose, to live alone, to walk alone, act alone, think alone, and fight her battles alone. The Bible says, it is not good for man to be alone, but never says it is not good for woman to be alone; and the simple fact is, that many women who are harnessed for life in the marriage relation would be a thousand-fold better off if they were alone." And it is safe to say that husbands who do not make their wives happy, are not over-burdened with joys themselves.

In the *Forum* for December, 1888, Junius Henry Browne, in a very able article, entitled, "To Marry or not to Marry!" says, page 438: "To marry is not an obligation, as might be thought from current talk: it is purely optional. He who refrains from wedlock and fatherhood cannot, in the overcrowded state of the globe, be charged with violation of duty to his fellows. To intimate that a man should take a wife, when he has not found a woman who wishes him to take her, is akin to inviting the blind to a spectacle, or a cripple to enter a race, and yet such intimations are incessant."

Again the great criminals of the world were not celibates. Even Agrippina, who plotted to secure the throne of Rome for her son, Nero, was a married woman; Cleopatra, the beautiful but wicked queen of ancient Egypt, was much married; Clytemnestra murdered her husband Agamemnon, and as in ancient so in modern history, nearly all crime was or is committed by youths or married persons.

No great amount of argument is necessary to prove beyond dispute that marriage is at present the most congenial method of dealing with the sex-affection, as now affecting the human family to a great or less degree, but to assert that celibacy deteriorates the human family, is certainly talking at random, as history very plainly demonstrates the contrary to be the true status of affairs. Observation, if not biased, teaches the same. CLINT L. LUCE.

BOOK REVIEWS.

THE EXCELLENT RELIGION. An Essay on the Relations Existing Between Agnosticism, the Polar Theory of Being, and the Higher Theism. By *G. C. Griffith-Jones* (*Lara*). London: Watts & Co.

This eloquently and clearly written pamphlet of thirty-two pages by Mr. G. C. Griffith-Jones, is an exposition of the doctrine of "The Excellent Religion"—a faith based upon the principles of Agnosticism. The treatment falls into three divisions designated: (1) The Parting of the Ways; (2) Agnosticism and the Polar Theory; (3) The Doctrine of the Excellent Religion. By "the parting of the ways" the author understands the divergent point of the various roads by which humanity seek salvation: the roads of Christianity, Atheism, and Agnosticism. The watchword of Christianity is "Memory," of Atheism "Does it Pay," of Agnosticism "Progress"; but the middle course, Atheism, is definitively discarded and the question thus remains, "Can Christian and Agnostic join hands over their superficial differences and tread the way of future progress with equal steps?" This depends upon definition, and upon the renunciation by the Christian of "the monuments of past credulity and present folly upon which are graven the creeds, the dogmas, and the doctrines which, fixed for all time by the fiat of infallibility, may never be altered." Can the Christian do that, then are Christianity and Agnosticism one; for Agnosticism is defined to be simply this, "*that a man shall not say that he knows or believes that which he has no reasonable grounds for knowing or believing.*"

And now as to the religious position of Agnosticism. "To theology," says the author, "the Agnostic philosophy presents an unbreakable phalanx of arguments . . . . but to religion it stretches out the strong right hand of friendship, and with her bows the head in reverent silence before the majesty and mystery which religion calls God, and philosophy the Absolute." Agnosticism is not destructive, not negative: "On the contrary. With the finger of well-assured certainty and the authority of ages of mental development, it points to the region of the unknown as the treasure-house of infinite possibilities, as the potential realization of man's deepest yearnings, and the possible fulfilment of his loftiest aspirations. . . . . For all the Agnostic may affirm or deny, that 'blank, impenetrable wall' which stands at the end of every pathway of intellectual investigation may be the veil which hides from eyes too weak to bear its glory the supernal splendor of the presence of God." In other words Agnosticism, although appealing to the authority of "ages of *mental development*" and pointing to the unknown as a treasure-house of "*infinite* possibilities," nevertheless erects, or confesses there exists, a "blank, impenetrable wall" at the *end* of "every pathway of intellectual investigation." But if that wall recedes as mental development advances, is it a wall? And how can the watchword of intellectual "Progress" be reconciled with arrival at a place where we must stop—stop "to bow in reverent silence before the mystery which philosophy calls the absolute?"

What that Absolute, that Unknowable is, appears from the following: "On what man knows and yet shall learn, he may reason; and he shall learn enough to reason upon forever if he will. On what he does not know, and, *with his present powers, never can know*, he may still dream to his heart's content, speculating hopefully and trustfully upon the infinite possibilities of the Great Perhaps." But that which cannot be known, cannot exist; the idea of something unknowable 'would imply the existence of an object whose existence is not manifested, *i. e*, existence without reality—which is a contradiction, an impossibility': the idea of the Unknowable deliberately posits a knowledge which is not-knowledge. And, naturally, this leads to dualism, for the author believes "that there will be a faith of the future which, while it will be based on knowledge, will soar far into regions where knowledge is impossible."

The second part of Mr. Griffith-Jones's pamphlet, "Agnosticism and the Polar Theory," is more properly the philosophical part, wherein the conclusions of the Agnostic position above discussed are logically stated and their relations to the "Polar Theory of Being" defined; the third part delineates "the superstructure" of the Excellent Religion. It is to this position alone of Mr. Griffith-Jones's that we object—the position regarding the "delineation of the Knowable from the Unknowable." With the faith and purity of aspiration pervading the whole dissertation we are in perfect accord. μκρκ.

NOTES.

We refer the attention of our readers to M. Lucien Arréat's interesting review, in the present number, of contemporaneous French philosophy.

The essays by M. Binet upon "Double Consciousness" are interrupted with this week's issue, to make room for his Rejoinder to Mr. Romanes upon the question of the psychic life of micro-organisms—the delay incident to which has been previously noted.

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